

Christian Academy of Natural Health

HUMAN PHYSIOLOGY

Class Introduction

In this course, you will study basic human physiology. Physiology is the study of the functions of the body at the cellular level. Anatomy and physiology are two subject matter areas that are vitally important to Christian herbalists. Do your best to achieve the objectives of this course. As a result, you will be better able to perform your job as a Certified Christian Herbalist (CH).

Course Components:

This course consists of 14 lessons and an examination. The lessons are:

Lesson 1: INTRODUCTION TO BASIC HUMAN PHYSIOLOGY

Lesson 2: PHYSIOLOGY OF CELLS AND MISCELLANEOUS TISSUES

Lesson 3: ENVELOPES OF THE BODY

Lesson 4: THE SKELETAL SYSTEM

Lesson 5: PHYSIOLOGY AND ACTIONS OF MUSCLES

Lesson 6: THE HUMAN DIGESTIVE SYSTEM

Lesson 7: THE HUMAN RESPIRATORY SYSTEM AND BREATHING

Lesson 8: THE HUMAN URINARY SYSTEM

Lesson 9: THE HUMAN REPRODUCTIVE (GENITAL) SYSTEM

Lesson 10: CARDIOVASCULAR AND OTHER CIRCULATORY SYSTEMS OF THE HUMAN BODY

Lesson 11: THE HUMAN ENDOCRINE SYSTEM

Lesson 12: THE HUMAN NERVOUS SYSTEM

Lesson 13: THE SPECIAL SENSES

Lesson 14: ELEMENTARY HUMAN GENETICS

Study Suggestions:

Here are some suggestions that may be helpful to you in completing this course:

- 1) Read and study each lesson assignment carefully and take good notes.
- 2) After reading and studying the first lesson assignment, work the lesson exercises for the first lesson.
- 3) Refer to the text as you complete the lesson exercises.
- 4) When you have completed the exercises to your satisfaction, compare your answers with the solution sheet located at the end of the lesson.
- 5) Reread the referenced material for any questions answered incorrectly.
- 6) After you have successfully completed one lesson, go to the next lesson and repeat the above procedures.
- 7) When you have completed all of the lessons, complete the online test for this course.

1: Introduction to Physiology

LESSON ASSIGNMENT Paragraphs 1-1 through 1-10.

LESSON OBJECTIVES After completing this lesson, you should be able to:

1-1. Define physiology.

1-2. Describe the levels of function and the relationship between structure and function in the human body.

1-3. Identify the effects of fundamental laws, concepts, and forces of the Universe.

1-4. Identify processes which distinguish living from nonliving objects.

1-5. Match three somatotypes with their descriptions.

1-6. Identify general body functions and their descriptions.

1-7. Identify fundamental processes for providing energy to human beings.

SUGGESTION After completing the assignment, complete the exercises at the end of this lesson. These exercises will help you to achieve the lesson objectives.

1-1. DEFINITION

Physiology is the study of the functions of the body at the cellular level.

1-2. LEVELS OF FUNCTION

Function in the human body occurs at three general levels:

- a. **Molecular.** The basic functional entity is the molecule. The structure and interaction of the molecules of the body is the subject of the science of biochemistry.
- b. **Cellular.** The individual cell is the basis of the structure and function of the human body. The individual human body consists of great numbers of these cells working together as a total organism. Groups of like cells performing a common function are called tissues. Different tissues collected together form individual organs. Groups of organs performing an overall function are called organ systems, for example, the digestive system, the respiratory system, etc. When these systems are together in a single individual, we refer to that individual as an organism. The cellular level of function is the primary subject matter of physiology.
- c. **Regional.** Here, individual parts of the human body (made up of specific organs) perform activities as a unit. For example, the hand serves as a grasping, tool-holding apparatus. The study of this level of function is called functional anatomy.

1-3. INTERRELATIONSHIPS

There is an inseparable relationship between structure and function in the human body. Every structure is designed to perform a particular function or functions. Likewise, every function has structures designed to perform it.

1-4. LAWS OF GOD

The Universe has a fundamental order. The Universe is governed by discrete and precise laws of God. These laws are universal, unchangeable, and omnipresent. The human organism is ultimately controlled by these laws. The organic body of the human being is essentially operated by the laws of physics and chemistry.

a. Gravitational Force and Mass.

(1) Gravitational force. As you stand upon the surface of the Earth, your body and its parts experience the force called gravity. The measure of this force is called weight. Gravity is one type of gravitational force, a force which attracts all particles and bodies to each other. Gravity acts upon your body during every instant of your life.

(2) Mass. If you were standing on the surface of the Moon, you would weigh 1/6 of your weight on Earth, but your mass would remain the same. Mass is an intrinsic property of a particle or object that determines its response to a given force. In a given location, the weight of an object depends upon its mass.

b. Space and Time. Each individual occupies a certain amount of space. We exist over a span of time. During the passage of time, we change--from an infant, to a child, to an adult, to an adult of advanced age.

c. Physical States of Matter. The matter around and in us exists in several states. These various states generally reflect the closeness of the molecules that make up the matter.

(1) Solid. The most compact organization is the solid, which retains its specific form and shape.

(2) Liquid. Liquids tend to flow but still stay together.

(3) Gas. Gases also flow but are widely spread and will readily dissipate in many directions.

d. Pressure Gradients. Substances that flow (gases and liquids) flow in very specific directions. They flow from an area of higher pressure or concentration to an area of lower pressure or concentration as long as the two areas are freely interconnected. The difference in pressures of two interconnected areas is called a pressure gradient. When plotted on graph paper, it is in the form of a slope. The greater the difference, the steeper is the slope and the faster the material flows.

This concludes this course lesson sample.